Supplementary Materials

Figure S1. Multiple sequence alignment of the malpisin family. Signal, pro- and mature peptides are boxed in pink, gray and blue. Color codes and symbol notes used here are the same as those in Figure 2. The arrow labels the position of a phase 0 intron.

Malpisin1-2 MKSASFPTRLLFIFAILAMAVAEGHLTCSCYDI Malpisin2-2 MTVALSIVSHLFLIPAVLAMAVAAPASPTLLAKDLSSFK-VASLTNSNDIPDAYCP-NISSCFSHCYYLH-FSHGACAGGGHLTCYCYDL Malpisin1-3 MKFSVPVTSSLILVGSGILALVAAAPASPTLLAKDLSSFK-VASLTNSNDIPDAYCP-NISSCFSHCYYLH-FSHGACAGAGCKCMTTFAQVLTPPATEIKAELILRDSTYGCPD-TSLQCREKCISLKLWTTGYCNGAQCKCMTTF Malpisin2-3 MKFSVSVASSVLLMGCGILTLVVAAPAPAPAPAPPVINLKTELTLTGGSYGCPG-QSEPCRQACHALK-WDNGYCNGEKCKCANFF	
Malpisin1-3 MKFSVPVTSSLILVGSGILALVAAAQVLTPPATEIKAELILRDSTYGCPD-TSLQCREKCISLKLWTTGYCNGAQCKCMTTF	
Malpisin2-3 MKFSVSVASSVLLMGCGILTLVVAEKCKCANFF	
Malpisin1-12 MKFSVQVASSLLLVGCSILGLAAAPQCKCVNFSVPALVPSEIVRRSESVVPGGSYGCPG-TSLQCREKCHSIK-WDNGYCDGPQCKCVNFS	
Malpisin1-4 MKFSSSVTSNLLLLVAMVMVNRAVPVPPSSVVDHNHSSALLKRNNGCPS-NF-PCNSYCSDRG-FAGGYCSV-EDGATHRCLCYGP	
Malpisin2-4 MKYHLSLISSLLVLVAMVMDMVKAGPVPPSSVVDHNQSSALIKRDYGCPS-NP-PCSLHCEDSG-YAGGYCSV-KDGTIHKCLCYGG	
Malpisin1-7 MFSHAMYSSSNSSNSGISFILLLFGAFVSMCLHFVDAAPARAPARLCPGGCQKYCQGLG-YADGDCSLFPWTHCVCYIQ	
Malpisin2-7 MLPRILYPPSKPSRSSKLLLFGAVGIMFLHSAGAAPTR	
Malpisin1-8 MQFGGPTVSVIALALALFTSTPATPLATRISSCPG-TTERCMQACLVRG-FPDGYCTPITIGILRSWCVCSAKMKG	·EN
Malpisin2-8 MQFKRPTVLIITLTLALLEITVATPAASHLSFCPG-TSEMCMQTCTAKG-FPGGFCTPITLGFLRSWCICKSTETS	·KN
Malpisin1-13 MRFSVSIFLSFLLACCILLTLVAAKDCICAKGLAEPSSDPFPSDCHGCPE-NVQECSQKCQTEK-RGGGHCSGKDCICAKGL	
Malpisin1-1 MKSNFLNVLRFILVASTAHMTVHAAPAGAPLLNANA	PTPV
Malpisin2-1 MKSNPLSVPRFILLASVALVMVYAAPASVPLLTPAGAGCPNISSCFSTCRGLK-FGRGSCAGDGHLQCVCYNRPED	·
Malpisin1-5 MLTFISAFTFLALLHLMASLPLATSALSTSA	·
Malpisin2-5 MRRLISTLAFLASCSWMVTLPVVTSAVSTSA	
Malpisin1-6 MTVSVSKYTLFAFVAMIATALLALPVSAGHDCWTFDSTECDRFCREELHRGGGHCAGLFNQECQCWN	
Malpisin1-9 MQFKMNSFTMLASVAIVMAVLMTTSSATIFPSDPSCPSRPACLRQCVAQN-FHVGRCTGARNSKCVCLSKEQV	·EAI-
Malpisin2-9 MIQFKINHVVILASMVIALAVLMTTSTA	
Malpisin1-10 MTKYTSFSLTLTAATALWLISLVDAWITTCNCNPT	
Malpisin2-10 MTTHTFFSRIIAAITVLLLISVVDAWITTCNCNPT	
Malpisin1-11 MLPLLFKSKTVHLALFFVLVLSAVHARNRWYCHCLGRPNT	QNF-
Malpisin2-11 MFKFKIVFLALCLFLMLSPIHARNRWYCRCYGAP	·KN
Malpisin1-14 MIKMAKLAMVALVVTVLLVKPAEAFLWHTCKCNQS	

Pharmaceuticals 2014, 7

Figure S2. Multiple sequence alignment of animal defensins. Signal, pro- and mature peptides are boxed in pink, gray and blue, respectively. Color codes and symbol notes used here are the same as those in Figure 2. The GenBank accession numbers of the defensin sequences are *B. floridae* (XP_002596529), *D. melanogaster* (NP_523672), *A. arabiensis* (ABB00945), *A. mellifera-1* (AADG06005896), *A. mellifera-2* (AADG06003648), *I. scapularis* (DS766801), *M. martensii* (AYEL01078893), *C. gigas* (AFTI01007260), *C. brenneri* (ABEG02001428), *C. remanei* (AEM44806).

	Signal peptide	Propeptide
B. floridae D. melanogaster A. arabiensis A. mellifera-1 A. mellifera-2 I. scapularis M. martensii C. gigas C. brenneri	MKCATIVCAIAVVLAATLLNGSVQA- MKIYFIVGLLFMAMVAIMA MKFFVLFAILVAIVHAGLISTSCS- MKAVAIALVVMMIAGLISTSCS- MKVIALFFLFAFIFCTLEVAIVEA MKVFVLLTLAVLLMVSADMAFA-	APRFKPKMAPQPR QPVSDVDPIPEDHVLVHEDAHQEVLQHSRQKR APQEEAALGGGANLNTLLDELPEETHHAALENYRAKR APVEDEFEPLEHFENEERADRHRR SCASVPKVVYDGPIYELRQIEEENIEPDTELMDSNEPLLPLRHRR QEDDSQVAHVRVR
C. remanei	MKFHTLLYVLVLLAVFSTMVLA	

Mature peptide

B. floridae	<mark>I</mark> SCDLLSISIGGTNFGDQNSACTAHCLVLGY-SGGHCNSH-DDNVCACH
D. melanogaster	ATCDLLSKWNWNHTACAGHCIAKGF-KGGYCNDKAVCVCRN
A. arabiensis	ATCDLASGFGVGSSLCAAHCIARRY-RGGYCNSKAVCVCRN
A. mellifera-1	VTCDLLSFKGQVNDSACAANCLSLGK-AGGHCEKGVCICRKTSFKDLWDKRFG
A. mellifera-2	VTCDVLSWQSKWLSINHSACAIRCLAQRR-KGGSCRNGVCICRK
I. scapularis	GFGCPLNQGACHNHCRSIKR-RGGYCSGI-IKQTCTCYRK
M. martensii	GFGCPLNQGACHRHCLSIRR-RGGYCSGF-FKQTCTCYRN
C. gigas	GFGCPCNQLKCNNHCKSIS-CRAGYCDAATLWLRCTCTDCNGKK
C. brenneri	<mark>A</mark> YG <mark>C</mark> GYLSSNHAECAEHCRTVEKCHGGKCVGR-LKQTCWCMKKDNTSC
C. remanei	DVKSGHYK <mark>G</mark> -P <mark>C</mark> YHDENCNGVCRDEGY-KSGHCSRWGGACWCDT